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(54) **SURGICAL STAPLING APPARATUS**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,054,406 A 9/1962 Usher
3,079,606 A 3/1963 Bobrov et al.

(Continued)

FOREIGN PATENT DOCUMENTS

CA 2 667 434 A1 5/2008
CN 101310680 A 11/2008

(Continued)

OTHER PUBLICATIONS

Extended European Search Report corresponding to EP 14 16 9739.1, completed Aug. 19, 2014 and Aug. 29, 2014; (7 pp).

(Continued)

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(57)

ABSTRACT

A loading unit for use with a surgical stapling apparatus is provided and includes a tool assembly having a cartridge assembly and an anvil assembly that are movable in relation to one another; a surgical buttress releasably secured to a tissue contacting surface of the anvil assembly and/or the cartridge assembly, wherein each surgical buttress is secured to the anvil assembly and/or the cartridge assembly by at least one anchor; a release assembly associated with the anvil assembly and/or the cartridge assembly; and a drive assembly slidably translatable through the tool assembly between proximal and distal positions, wherein the drive assembly actuates the release assembly to thereby release the anchor to free the surgical buttress from the anvil assembly and/or the cartridge assembly.

8 Claims, 24 Drawing Sheets

